

## FOR THE PAPER-LESS SOCIETY

Nam June Paik, February 1968

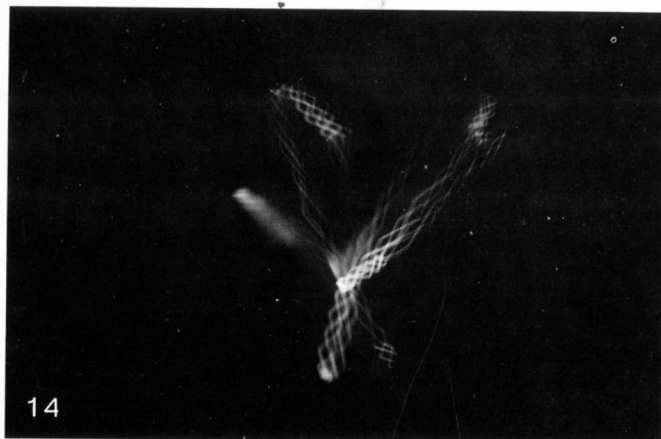
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This report is written during the first three months of my tenure at Stony Brook, on a Rockefeller grant. The second report will follow in May, 1968.

1. Instant "Global University"

Suppose a girl in Kentucky wants to study the Japanese Koto instrument, and a graduate at U.C.L.A. wants to experiment with certain Persian or Afganistan musical instruments. How would they do this?

The mailable television (i.e. video tape) would enable the individual lessons for many subjects to be given from any-



where to anywhere. For instance, twenty different music students of an American university could study twenty instruments of a Gagaku orchestra, which exists only in the Japanese emperor's court, using video tape, and then go on a concert tour to Japan dressed in authentic costumes. This would be a major cultural shock to the Japanese, comparable to that of Admiral Perry. This technique applies in less spectacular, but more substantial fields.

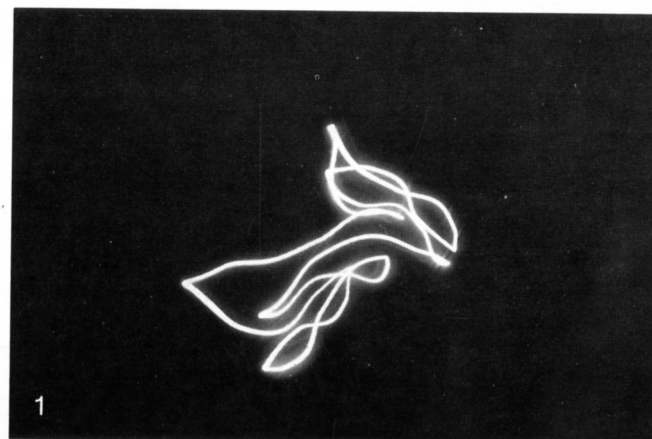
There could be an Oxford-Stony Brook lecture change, a Yale and Stanislawsky School (Moscow) drama lesson change, a Tulane-Nairobi dance lesson change, a Yeshiva-Tel Aviv liturgy study change, Berkeley-Stony Brook lecture links, a star-lecture cooperative amongst eighty-six New York State university campuses, etc. In order to evade a complicated foreign exchange problem, a bartar system of service

should be created.

2. 97% of all music written is not printed, or printed early enough for contemporary evaluation, performance and study. 97% of all electronic music composed is not recorded, or not recorded early enough for contemporary feed-back. A vastly unfavorable gap exists for the composer, compared to the booming pop-op-Kinetic art boom. Even experienced concert managers and performers have difficulties getting materials from composers, who are often unreachable, whereas composers on their part complain of the too rare performing chances

A simple measure would solve the whole problem. An information center for unpublished electronic music should be created, which would provide a xerox copy, and a tape copy of musical pieces, at the request of performers, students, and organizers from all over the world. The average time lapse of ten to thirty years now existing between the completion of a piece and the publication of its score or record could be shortened to only two or three days, with a 95% cost reduction and an extension of the convenience of "being published" to every composer in the world. Only one librarian with a xerox machine would be needed for this improvement.

3. It is a blunder, bordering on a miracle, that we have no, or very few, images and voices of the great thinkers of the recent past on record, especially as the 16mm talkie was readily available. For instance we have hardly a record of Hussearl, Freud, Proust, Joyce, Kandinsky, Berdjaiev, Merlau-Ponti, Suzuki, Gide, Thomas Mann, Schoenberg, Varese, Bartok, Mondrian, Dilthey, Wittgenstein, Shaw, Valery, Jung, Keynes, Buber—even Nietchze and Tolstoy lived well into the



film age, as did Thomas Edison himself. This negative wonder is the biggest waste of instructional resources, if we recall how much footage of late-late show movie and Hitler news reel was filmed. Therefore, nothing is more urgent and success-proof than to film the images and voices of aging great thinkers of today, and yesterday, in sufficient and surplus quantity, who might pass away any day, such as Marcel Duchamp, Jaspars, Heidegger, Gabriel Marcel, Ortega Y Gasset, Lucasc, Toynbee, Radaklishnan, Ernst Bloch, Niebuhr, Puller, Sartre and Russell. The interviewer should be a qualified philosopher himself and the camera crew as minimal as possible, so that Jaspars or Heidegger can talk as naturally as "Chelsea Girls". An NBC or NET-style expensive film technique is not only unnecessary, but may be harmful for this subject.

America has 5,000 colleges, which require 20,000 philosophy teachers. The shortage of qualified teachers of philosophy is acute, especially at the junior community college level. This discipline cannot profit much from automatic devices or computerized quiz machines. The supreme act of "philosophieren" requires a total involvement of the whole personality. Therefore new information techniques such as video tape, film, audio devices, loop techniques, non-linear printing techniques, light art, stroboscope, medical electronics, brain wave transmission should be used for the total conveyance of great philosophers' messages, and for the stimulation of students' own "philosophieren" and maybe for the preparation of a post-McLuhan, non-linear, possibly more iconographic and totally involved 22nd century philosophy. If philosophy wants to recover the hegemony which it held for centuries, the students of philosophy proper should also be exposed to today's electron-

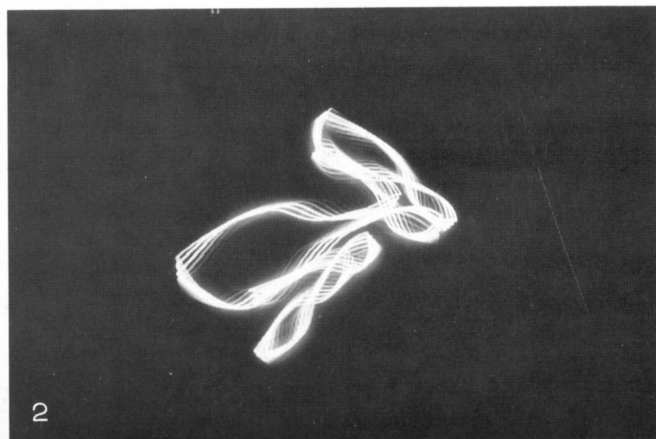
ic situation, instead of to parchment philology.

Needless to say, Jaspars and Heidegger's own explanations about themselves, which we have described above, would be a strong means for qualitative and quantitative improvement of philosophy education. This technique applies also to other humanities and social sciences, in which personality and scholarship are essentially combined.

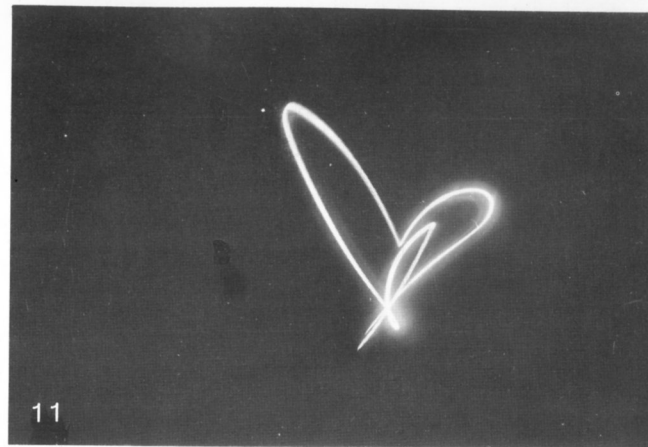
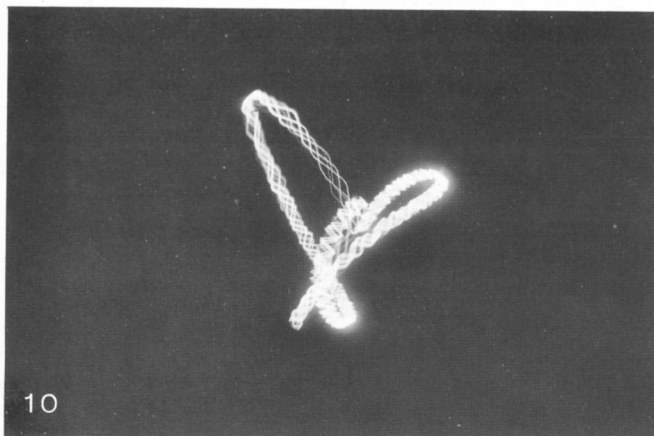
Video tape reading aids can also be useful for major philosophy classics in original language and English. IBM is making a computer index of painting related to music. The same thing could be done, if it is not already underway, about the pictorial material on philosophy, although my idea of video tape guides to philosophy is far from the mere accumulation of portraits or birth places etc. In my next report I will go deeper into this point.

4. Western music as a whole can be grasped as a many faceted dialectic struggle between TIME (sound) and SPACE (notation and other various visual elements). Therefore the impact of the video tape recorder cannot be overestimated in composition (electronic opera), musicology (the whole Eitner Lexikon on video tape for the instant access to all sources in Montpellier or Manheim) and music education. Synchronized visual accompaniment to the sound track on video tape (notation, written explanation and, occasionally, the performer himself) will enrich the study and appreciation without disturbing the musical flow, while saving the teacher's time. While the sound of the video tape proceeds, the following information can be visible on the accompanying video part:

- a) Medieval music  
source and modern transcription and musicological problems parallel with sounds (stylistic analysis and development— e.g. plain chant -- Tropus -- Sequenze -- Motettus) and Neumen problems ("The most authentic performance of Gregorian chant is no more authentic than the Neo-gothic church built in the 19th century"— Besseler)
- b) Polyphonic music (13th - 17th century)  
esoteric polyphonic techniques, indicated with arrows, etc. Ockeghem's 32 parts fugue will be properly appreciated for the first time in history this way - also Bach's Choral Vorspielen, Kunst der Fuga etc.
- c) Classical music  
thematic development, macro-form anal-



ysis, interpretational problems, such as controversial dynamic, phrasing, different sources, finger, batton, breathing, various stresses on inner parts Marquanto, which often escapes untrained ears, etc.



- d) Music of romantic era.  
By following the proceedings of Leitmotiv on video tape, program music can be restored from oblivion. Also text-melody correlation (recent semi-sensation in musicology, Professor Georgiades' "Schubert Lieder") and the deterioration of functional harmony
- e) Seriel and electronic music  
Intellectual information concerning the total organization of whole parameter, frequency analysis, and technical information of electronic sounds. In some Stotkhausen, Boulez' music, the complexity of score makes the simple following of sound with score very hard, and this "paper music" (in a good sense) requires the paper understanding, since the accurate performance is impossible.
- f) Music Graphic  
In this other kind of "paper music", sound and notation are far apart so that the imaginary double play becomes an integral part of understanding. The listener should know that - e.g. Tudor pushes the the middle C key for an apple figure on Cage's piano concerto, whereas K-E Welin go under the piano and eat a nut for the same symbol. This feticism of ideas is piercing through Pop art, Mini skirt and the Fortran block diagram and is a stylistic criterion of 20th century culture. Following the score in the indetermnistic music is indispensable in the opposite meaning from the deterministic music.

- g) Event and Action music  
Often there is no way to make the notation of music except by recording the whole performance. Stockhausen and Ligeti suggested a film of my action music pieces (1959-61) to be used as a score, which I rejected for a philosophical reason. However, for many events music (which exists now in every country in the world) such as Brecht, Chiari, Christiansen, Hidalgo, Kosugi, Patterson, Schnebel, Shiomi, Tone, Welin, Young, viedo tape will be a useful supplement for their sketchy instructions.
- h) Mix Media Music  
All opera, and all non European music are mix-media pieces. Video tape is the only legitimate way of study, except for the actual performance. For ethnological music, which broke the barrier of academy since the success of Ravi Shanker and Folkways Record, video tape exerts maximum power. E.g. the acoustical analysis of pitch and timbre (obertone, formant) transcription. Pentatonic is the invention of 19th century Europe.
- i) The younger generation is increasingly visually inclined with more desire for the total and instant perception. How would the classic music, including the new serious music, fare in the age of ELECTRONIC VIDEO RECORDING?  
The above experiments, plus more Utopian research, are preparatory experiments for this big question.

5. Most singing students finish their full college course without playing even once in the opera which they studied so painstakingly. This kind of half study turns them into half teachers. Acting in the opera should not be reserved only for the most talented.



Following video Ersatz will enable singing students to taste the operatic situation much more than now, and to shorten the rehearsal time by ten to one, which results in the increased frequency of actual performances.

e.g. Traviata

1st film (or video tape) should be made of everything but Soprano part, and used for the soprano part rehearsal.

2nd film is made likewise without tenor part and used for the tenor part rehearsal.

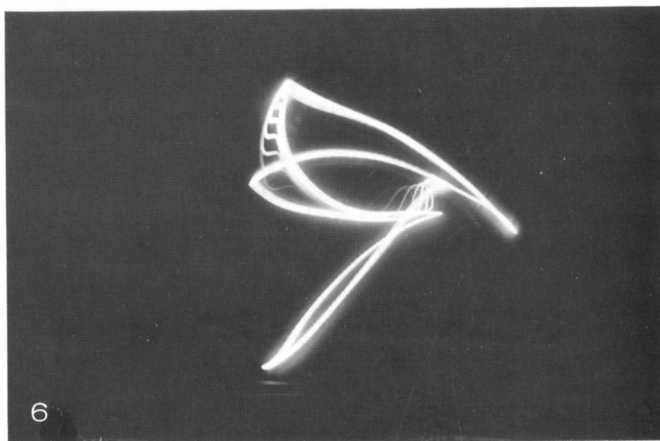
3rd film - likewise without baritone

4th film - likewise without bass.

Film can be projected onto four walls simultaneously to ease the acting lesson.

This method, which has already proven workable in the field of pop music, applies even more to drama.

e.g. Macbeth without Lady Macbeth  
Hamlet without Hamlet



Romeo without Juliet.

A teenage Ophelia in Nevada can be a co-star to Lawrence Olivier's Hamlet via the screen.

This whole scheme will be much more effective, if 3-D Holography is once realised on the stage.

A simple chorus piece without one part would help the sight singing exercises and a string quartet without one instrument would cut out the rehearsal time and ease the traffic jam - slightly.

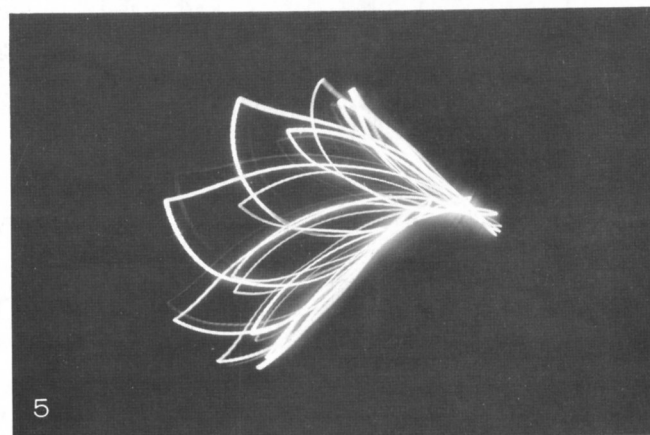
6. If revolution meant for Russians of 1920  
electrification  
then the revolution in 1960 means  
electronification...mind to mind...planet  
to planet.

But even McLuhan misuses and mixes up the words "electric" and "electronic", which have

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as much difference as tonal and atonal, much less the average academician. In order to focus the attention of the whole academic community drastically to this electronic situation, the following events are suggested.

- a) There are more than dozens of TV stations in operation in campuses here and also, most likely, abroad. A contest of student TV stations should be held, which would attract wide attention from journalism etc.
- b) In addition to the student house organ paper, the student body should use their TV station for news, commentary, etc.
- c) In addition to the Year Book and graduation photographs, every student can make a short self introductory speech or act on video tape, which would run on TV in student restaurant or main corridor incessantly. The graduation book can be an electronic video disc, if it gets popular. If we allot half a minute for each student, still we can show 1000 students for one day. It means every student (5,000) of Stony Brook can be on screen once a week, which makes the big public university as intimate as a New England prep school.
- d) It is often said that in the big university the faculty and student body lack interrelation. This old song is again repeated in the recent Stony Brook incident. I urge a simple but effective solution. Important faculty members, especially the President and Deans, should make regular TV speeches



or hold discussions with the student body and this video recording should be going on day and night at gathering points of students, so that they can also convey their answer to the higher administrative body. Many universit-

- ies have a \$1m. TV system, and currently it is no more than a 'sleeping beauty'.
- e) French, German, Italian, Spanish, Russian TV should be shown constantly in the student gathering places. It helps language study (without strain), deepens global consciousness, (again the instant global university), and helps the study of journalism, political science, arts, economics, etc. TBS (Japan) station had a bi-lingual broadcasting system and we are making an enquiry about the present state of this experiment. This makes English speaking people understand one of the major TV stations of Japan. Another idea is to intercept Chinese Television in Macao or Hong Kong if possible. The copyright problem could be undercut if we concentrate on commercials etc.
- f) I asked for the catalogue of educational film about music at Stony Brook, Lincoln Center Library, Columbia Teachers' College. The result was very poor. I was in several TV programs here and abroad, which are all unretraceable now, in labyrinth. I recall seeing several good music programs, which have high instructional content, which are all lost in the deep sea of TV stations. An international catalogue of educational film and video tape at least, on music, art and philosophy, should be made, or accelerated if in progress. Also a savage action should be conducted on the remaining news reel of film including 8mm amateur film fragments of recently passed great thinkers, such as Schweitzer, Buber, Shaw, Camus, Suzuki etc., before it gets too late.
- Internal and international exchange promotes efficiency, through the division of work, and the elimination of double work, which constitutes a main point of McNamara's new operational philosophy. (See Note 3). McNamara's method promises a successful application in the coordination of all Instructional Resources Centers in the New York State University, because surely they have many duplications. As businessman's capital should turn over as fast as possible, so academic resources should turn over as fast as possible.
- An academic currency system (say, one Newton equals 5 skilled manpower hours) can be created in order to undercut the barrier of foreign currency control and

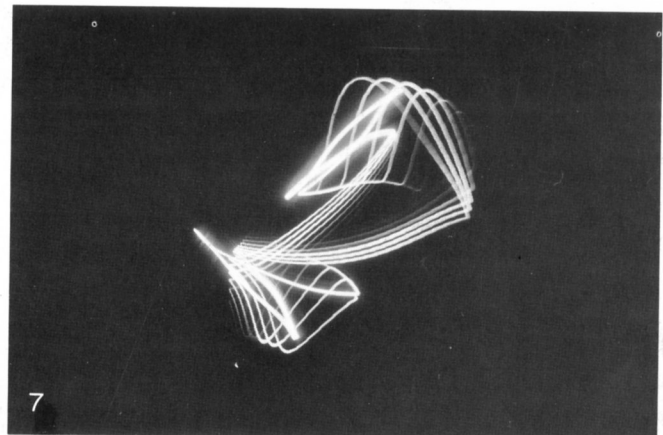
differences of purchasing power, and the ox-cart tempo of budgetary offices.

"There were 61 global services in 1965 fall" (John Cage), and we will have one more now.

- g) Last, but not least, I was happy with Richard Hartzell's opinion, that my electronic color TV experiments have instructional resource value.

Dozens of playabilities can be assembled to a console and can be distributed to Kindergarten or elementary schools. Its educational effects:

- 1) Children are exposed to electronic situations very early.
- 2) My electronic TV shows various basic facts of physics and electronics concretely, such as amplitude modulation, radar, various scanning, cathode ray, shadow mask tube, osiro scope, ohm's law, obertone, magnetic character, etc.,



and it is a very pleasant way to learn these important facts.

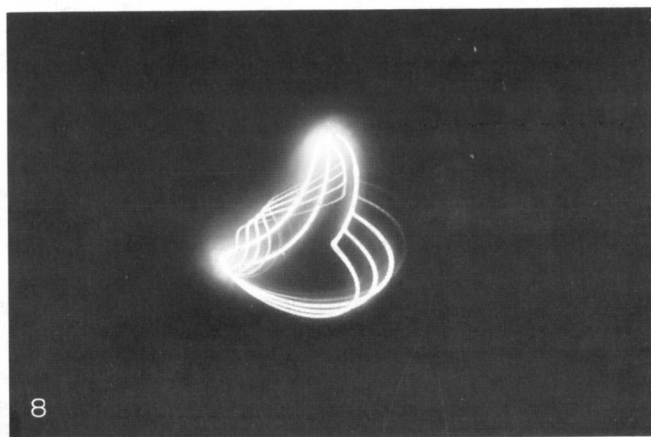
- 3) It gives the possibilities of electronic drawing. It is better than the light pen because my way is multi-colored and it provides much interaction with the air program.
- 4) Since my color TV is the unusual, unorthodox application of an every day commodity, this stimulates the kids for more original, less prejudiced thinking.

An attachment for 10 possibilities can be manufactured for from \$200-300. The cheapest 18" color TV set costs \$244 retail, which would sell wholesale for about \$180. The total cost would be in the range of \$500.

7. Elementary music education is a fertile domain for the computer assisted instruction, since it employs simple numbers, simple rules with few exceptions, and little controversy

on the basic facts. The universities of Connecticut and Stanford have done considerable research in this field (see Note 4) and I assume Illinois, Princeton, etc. have also made contributions to music education. Stony Brook should adapt this programming and experiment to actual education, which would often lead to the discovery of better solutions. But sometimes the best use of the computer is no use of the computer, since computer time will remain expensive, and a computer is not portable, and standardization of computers and programming is of the remote future. Therefore, purely electronic solutions would be viable for certain simple purposes, although research and experiment in computers should have priority, for many higher reasons.

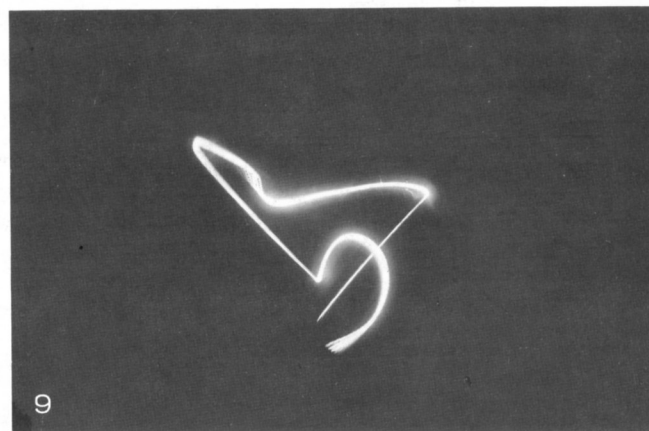
- a) For automatic pitch detector for solfeggio, or absolute pitch training, combination of bandpass filters and/or R-C resonance circuit will be sufficient.



Automatic frequency control can show the deviation of intervals and pitches on a magic eye. (Jim Tenney and J-C Risset's technical advice should be noted on this point, as well as general advice of Jim Tenney in all fields concerning computer-aided music and art.)

- b) A combination of punch card and specially wired key board can become a teaching machine of general bass exercise, score sight play exercises, etc.
- c) Jim Tenney suggested that whole harmony and counterpoint courses can be put on video tape with computerized answers. He is also trying to introduce electronics and computer programming to music and art schools as part of the regular curriculum.
- d) Mr. Mathew's (Bell Labs) music console program: Everyone writes a poem or draws a picture, but few dare to compose music. This mysterious psychological barrier can

be broken down by Mr. Mathew's epoch-making programming--that is, a real-time sound generation from the light pen on the cathode ray tube score. It can be applied into Kindergarten to promote their creative thinking and to detect their



talent earlier. A free composition class, like a free drawing class, can be tried from a very early age, since this machine lets the kids record their composition before even studying the notation. It should also be tried at mentally retarded children's schools and asylums for the insane.

- 1) composition means a new way for self-expression, which results in a relief of tension and favorable psycho-therapy.
- 2) it provides valuable data for many sciences (biology, psychology, medical electronics, and brain research).
- 3) maybe we could find a man, who is as crazy as Gogh, but as genial as Gogh. (A mentally retarded kid in Japan is educated and promoted to a prominent painter... Yamashita Kioyshi.
- e) Mike Noll (Bell Labs) last month completed a 3-D figuration using the light pen, cathode ray tube, and medium-sized computer. It can be useful for experimental art classes, maybe for sculpture class, and drawing courses for engineering students and the teaching of solid geometry. Both Mathew's and Noll's programs are adaptable to the present facility of Stony Brook IRC. I personally feel that high level applications like Noll's or Mathew's programming would be more valuable, since it means the augmentation of new knowledge, and creation of new art, whereas low level applications, such as sight-singing, or ear-training is just a money saving in teaching yester-

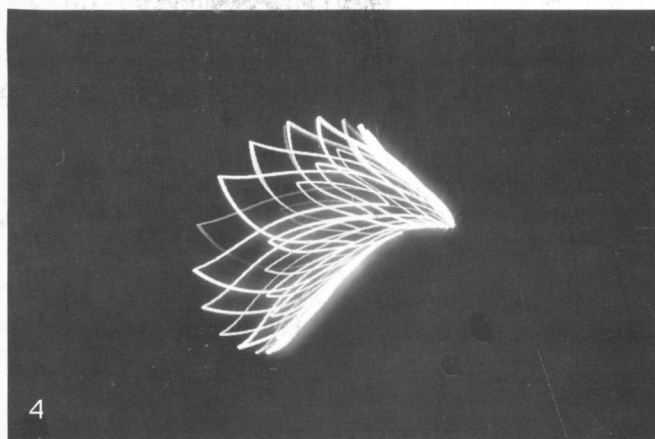


day's music. From a national point of view, the former would draw much more favorable attraction to Stony Brook.

8. There is often a complaint made that a big microphone class kills the personality of the teacher, but this technique can be used in such a way that it not only amplifies the voice of the teacher, but also amplifies his whole personality. John Brockman Associates Inc. and USCO used mixed media techniques in the promotion of Scott Paper Company, with great success. It should also be tried in education.

9. How to prevent a slum kid, who would knock down even a teacher, from breaking an expensive teaching console?

The live teacher is a combination of scholar (that is: data storage and data processing unit) and personality (that is: a highly versatile input-output unit). Presently the main job of Computer Assisted Instruction is concentrating on the programming of central processing units. But if Computer Assisted Instruction proves to be economical and if it were to be spread to mass education, (which actually is the main goal of all endeavour), then how would the console replace the stimulation, attraction, reproach and praise of a teacher's personality, especially to small children and unmotivated and less privileged kids from bad neighborhoods? In the practical application stage of CAI, this so-called peripheral unit (input-output unit, equivalent to teacher's personality) will be-

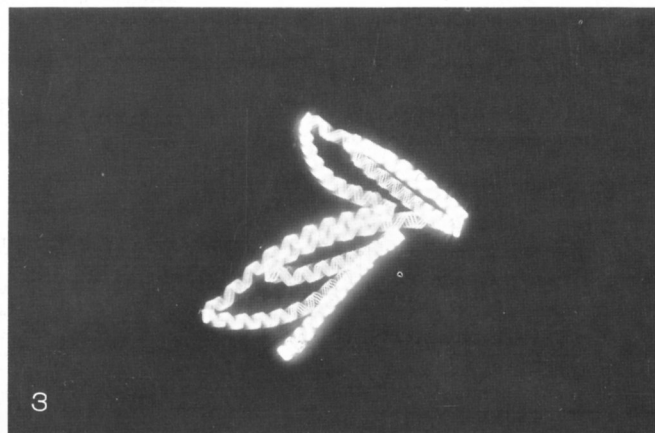


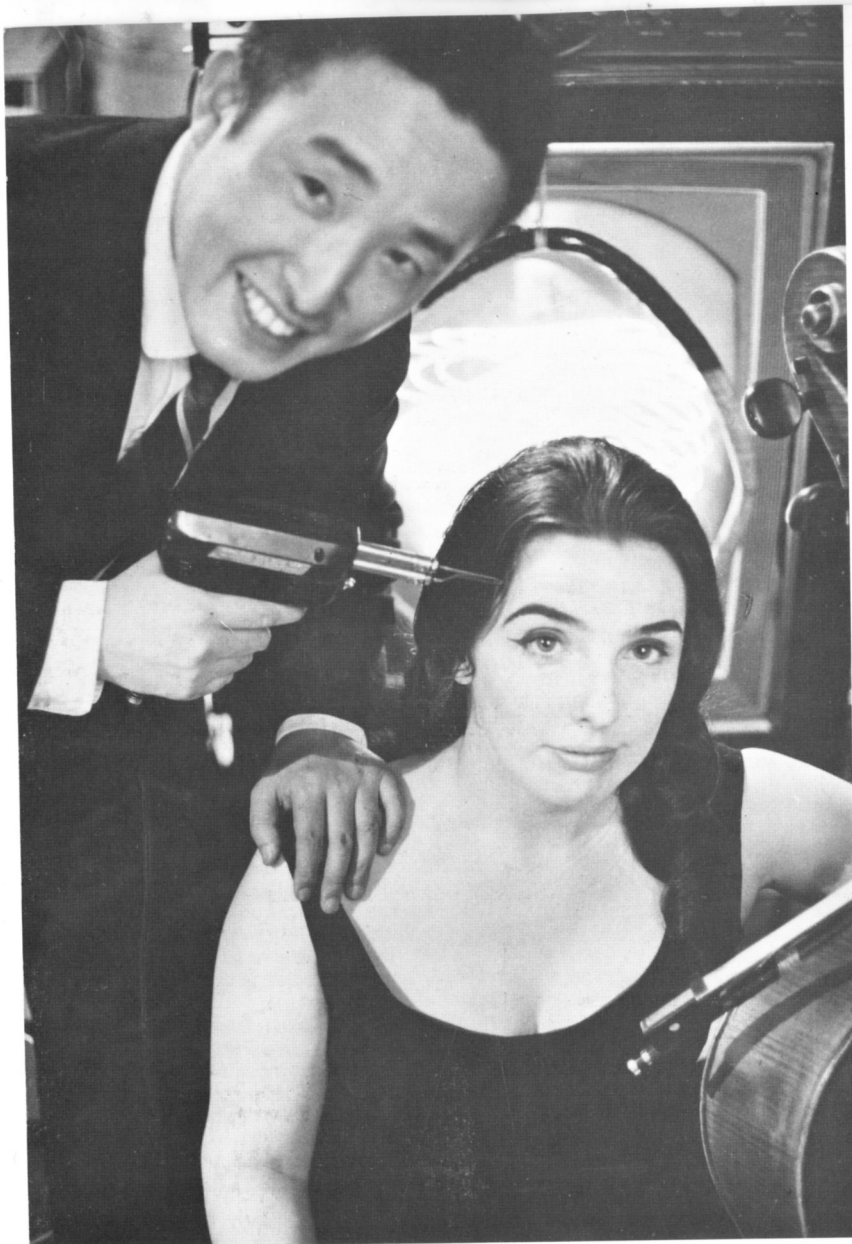
come actually as important as the so-called central processing unit. Who wakes up a drowsy girl, and who protects the frustrated kid from breaking the high vacuum cathode ray tube, and who soothes the intellectual scepticism which does not agree with the computer's

answer? Just at this point the high flying imagination of the avant garde artist should be mobilized and put to work, as Allan Kaprow is preaching, and has been for the last five years, to stone ears. Significantly enough, the president of Xerox announced a parallel opinion (see Note 6). According to Mr. McColough, 70% of computer business and profit was made in the hardware section, (that is, the Central Processing Unit) in the past decade. But in the coming decade this proportion will be reversed, and 70% of the profit will be made in the so-called peripheral unit (input-output unit), in which Xerox will be more competitive with IBM. The artist is the professional manipulator of mind, and we should add our surplus imagination for this project. Medical electronic devices to wake up, stroboslight, direct confluence of brain wave, windlight-tactile (see Note 7) devices, certain noise-refrigerator devices, etc. can be added, plus an electro sleep generator, to put a hopelessly sleeping girl to sound sleep. Serge Boutourline, of Inter-Action Inc., is experimenting with several interesting devices in this Input-Output problem. Even a robot should be considered for first and second grade children.

10. In the age of information, the library of the university will become, if this rude parallel is allowed, as active as the Central Intelligence Agency in America. Therefore, besides the above mentioned Jaspers-Heidegger films etc., the following archive is suggested:

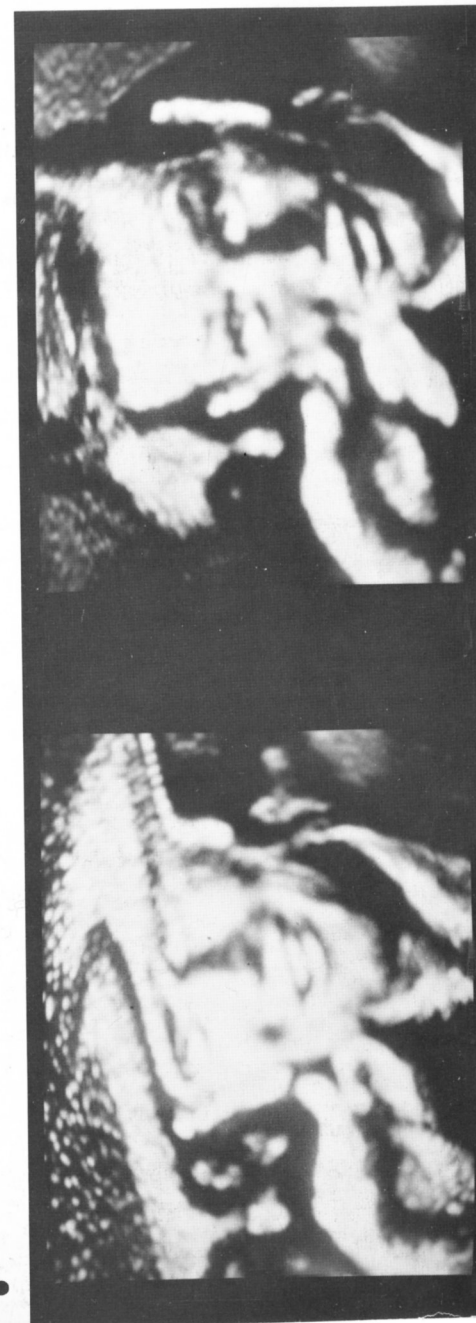
a) I found that used computer tape (half inch) is useable on a Sony video tape recorder. Despite considerable loss in video and audio, it is still functionable as a documentary and studying aid, although it is far below the level of artistic and entertainment use. Anyway, this enables one to record a one hour TV





1968. Nam June Paik and Charlotte Moorman.

Videotape Study No. 3



(5) (3) Some additional lighting will be fine, but if he dislikes it, I can just tape "dim-video tape..."

(4) It will be pleasure, if it happens before 15 of April, but if not - - - later at any time. yours PHIX

U.S. POSTAGE

THIS SIDE OF CARD IS FOR ADDRESS